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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/024,382	12/21/2001	Christophe Boyer	PET-1979	5830
23599	7590	08/09/2005	EXAMINER	
MILLEN, WHITE, ZELANO & BRANIGAN, P.C. 2200 CLARENDON BLVD. SUITE 1400 ARLINGTON, VA 22201			KERNS, KEVIN P	
			ART UNIT	PAPER NUMBER
			1725	

DATE MAILED: 08/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/024,382	<b>Applicant(s)</b> BOYER ET AL.	
	<b>Examiner</b> Kevin P. Kerns	<b>Art Unit</b> 1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 1/21/05, 1/26/05, 2/10/05, 4/20/05, 7/12/05.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 25-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 25-37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

*12*

## DETAILED ACTION

### *Specification*

1. The disclosure is objected to because of the following informalities: on page 3 (last line) of the amendments to the specification of January 21, 2005, replace "Figure 2" with "Figure 3". Appropriate correction is required.

### *Double Patenting*

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 25-37 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-12, 16, and 17 of U.S. Patent No. 6,824,675 in view of either Forster et al. (US 3,946,104) or Westerman et al. (US 4,894,205).

This application and US 6,824,675 share the following common elements: an apparatus comprising a vessel and an injection device inside the vessel for injection first and second immiscible fluids (liquid and gas); a plurality of orifices in the chamber; a

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catalyst bed within a reactor and having a reactor head section; elongated conduits extending downwardly through the chamber, such that the conduits have free ends extending outside the chamber by a defined distance and acting as a passage; and means for introducing the first fluid into the chamber. US 6,824,675 does not disclose imperforate conduits.

However, Forster et al. disclose a device for mixing and distributing two fluids, with the device further including a chamber containing a first fluid and a series of impervious conduits traversing the chamber in a vertical direction and supplied with a second fluid, such that the tubes contain openings having free ends that communicate with the chamber and is located between catalyst layers in a reactor (abstract; column 2, lines 13-61; column 3, line 1 through column 4, line 67; and Figures 1 and 2). The impervious conduits are advantageous for obtaining thorough mixing of the two fluids (Forster et al.; abstract; column 1, lines 9-13; and column 2, lines 13-19).

Also, Westerman et al. disclose a device for mixing and distributing two fluids (liquid and gas) for a multitube reactor, with the device further including a chamber and a series of impervious conduits traversing the chamber in a vertical direction, such that the tubes contain openings having free ends that communicate with the chamber and is located between catalyst layers in a reactor (abstract; column 1, lines 65-68; column 2, lines 1-28 and 44-68; column 3, line 1 through column 6, line 39; and Figures 1-5). The impervious conduits are advantageous for obtaining thorough mixing of the two fluids in the reactor (Westerman et al.; abstract; column 1, lines 9-13; and column 2, lines 13-19).

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 26, 27, 31, and 37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

35 U.S.C. 112, sixth paragraph states that a claim limitation expressed in means-plus-function language "shall be construed to cover the corresponding structure...described in the specification and equivalents thereof." "If one employs means plus function language in a claim, one must set forth in the specification an adequate disclosure showing what is meant by that language. If an applicant fails to set forth an adequate disclosure, the applicant has in effect failed to particularly point out and distinctly claim the invention as required by the second paragraph of section 112." *In re Donaldson Co.*, 16 F.3d 1189, 1195, 29 USPQ2d 1845, 1850 (Fed. Cir. 1994) (in banc).

In this instance, claims 26 and 27 respectively recite "means such that said..." and "means whereby the flows...". It is unclear what structural features are being claimed by these respective "means".

With regard to claim 37, it is unclear what is meant by the limitation "certain height", as no relative dimensions are given for comparison.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 25-28 and 32-37 are rejected under 35 U.S.C. 102(b) as being anticipated by either Forster et al. (US 3,946,104) or Westerman et al. (US 4,894,205).

Forster et al. disclose a device for mixing and distributing two fluids, with the device further including a chamber containing a first fluid and a series of impervious conduits traversing the chamber in a vertical direction and supplied with a second fluid, such that the tubes contain openings having free ends that communicate with the chamber and is located between catalyst layers in a reactor (abstract; column 2, lines 13-61; column 3, line 1 through column 4, line 67; and Figures 1 and 2).

Also, Westerman et al. disclose a device for mixing and distributing two fluids (liquid and gas) for a multitube reactor, with the device further including a chamber and a series of impervious conduits traversing the chamber in a vertical direction, such that the tubes contain openings having free ends that communicate with the chamber and is located between catalyst layers in a reactor (abstract; column 1, lines 65-68; column 2, lines 1-28 and 44-68; column 3, line 1 through column 6, line 39; and Figures 1-5).

A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). Further, the examiner notes that intended use limitations, such as "for carrying out separate

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injection of first and second fluids which are in two different physical states...", do not have patentable weight in an apparatus claim. Furthermore, the fluids and the flow direction(s) of the fluids do not provide further structural limitation(s) to these apparatus claims. See *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969) that states "Expressions relating to the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim." See MPEP 2114 and 2115.

### ***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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10. Claims 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Forster et al. (US 3,946,104) or Westerman et al. (US 4,894,205).

Forster et al. and Westerman et al. individually disclose the elements of claims 25 and 27 above. Neither Forster et al. nor Westerman et al. specifically disclose the range of distances below the chamber and between the end of the tubes and the top of the bed. However, one of ordinary skill in the art would have recognized that the distances required by a given reactor or distillation column would readily be determined and dependent of the area/volume of the vessel and sub-chambers within the vessel, for the purpose of achieving optimum efficiency/conversion in the catalytic/distillation apparatus. As a result, it would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to determine the optimum range of distances given within the chamber to achieve optimum operational efficiency. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

### ***Response to Arguments***

11. The examiner acknowledges the applicants' amendments/responses of 1/21/05, 1/26/05, 2/10/05, 4/20/05, and 7/12/05. The amendments overcome prior objections to the drawings, abstract, and specification, but a new objection to the specification has been raised (see paragraph 1). Prior rejections under 35 USC 112, 2<sup>nd</sup> paragraph have been overcome by the claim amendments, but new 35 USC 112, 2<sup>nd</sup> paragraph



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rejections have been raised (see paragraph 5). The prior art rejections based on Den Hartog et al. have been overcome by the amendment. All prior claims have been cancelled, while new claims 25-37 have been added. However, these new claims raise new double patenting issues (see paragraph 3). Claims 25-37 are currently under consideration in the application.

12. Applicants' arguments with respect to claims 25-37 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Kevin P. Kerns whose telephone number is (571) 272-1178. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin P. Kerns *Kevin Kerns 8/5/05*  
Primary Examiner  
Art Unit 1725

*KPK*  
kpk  
August 5, 2005